

## **Saving-investment Behaviour in Pakistan: An Empirical Investigation**

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### **I. INTRODUCTION**

Saving and investment are two key macro variables with micro foundations which can play a significant role in economic growth, inflation stability and promotion of employment especially if seen in the context of a developing country. For self-reliance and growth objectives, mobilisation of domestic resources and their efficient utilisation are the two major policy oriented focuses today [Khan (1993)]. National savings are critically important to help maintain a higher level of investment which is a key determinant for economic uplift. Thereby, necessitating the analysis of saving-investment behaviour and its determinants for policy implications; this is a demanding area because of continuing debate on the potential role of their determinants.

The econometric modelling do not appear to be adequately developed to fully account for the non-measurable determinants of saving, as they interact with the observable and quantifiable factors [Kazmi (2001)]. Moreover, data reliability for a developing country like Pakistan is still a question and data on many potential determinants is not available. Whereas, earlier studies on saving behaviour and its determinants have provided several model specifications, investment studies have not dealt sufficiently in the estimation of plausible determinants of investment and their potential impacts. Most of the studies on investment observed the behaviour of foreign investment and the favourable atmosphere for investment only but could not provide a comprehensive model for the determinants of total investment [Khan (1994); Nunnankamp (1991) and Guisinger (1997)]. This paper is an attempt to generate a model on the basis of fundamental theories of saving and investment and to identify some key policy variables which by intervention can increase savings formation and increase level of investment in the country.

A number of studies have analysed the behaviour of saving and its determinants in Pakistan based on the time series analysis of macro variables or the

cross-sectional studies of micro data sets. Here, we will mainly focus on the time series studies, which are more relevant to current study. Khan, *et al.* (1994) examined the determinants of saving rate in Pakistan in terms of a variety of factors. The study found a strong and positive effect of per capita GNP on national saving. The study showed that real interest rate, change in terms of trade and openness of the economy positively influence national saving. Both debt to GNP ratio and dependency ratio were found to have adverse impact on national saving. A more focused study of Husain (1996) investigated the importance of financial development and deepening for saving in Pakistan by using cointegration technique and found quite favourable effects of these variables on savings.

While using micro level data, Siddiqui and Siddiqui (1993) emphasised on economic and demographic factors effecting savings behaviour. Qureshi (1981) estimated savings function based on transitory income and permanent income (calculated as an average of current and past two years measured income), and found MPS out of transitory income which was much higher as compared to that of permanent income. Further his results showed significant positive impact on savings, of call money rate, yield on long-term government bonds and average interest rate on scheduled banks' savings deposits. Khan, *et al.* (1992) could not find evidence of Harberger-Laursen-Metzler effect, further they concluded that significant positive impact of rate of interest on savings show a state of financial repression in the country. Mahmood and Qasim (1992) followed Bhagwati (1978) approach to estimate the relationship between trade regimes and savings. They found that during import substitution regimes MPS was high (0.15), but with flexible exchange rate it did not help to increase MPS any more. Further he illustrated that foreign capital inflow in Pakistan has adversely affected the savings efforts under all trade regimes.

In other studies, Masson, *et al.* (1998) has examined a very comprehensive model for different countries with time series analysis. Significant effects of budget deficit, government's current expenditures, public investment, GDP growth rate, inflation rate and dependency ratio have been observed in the study. In a more recent study, these determinants of saving have been tested by Athukorala and Sen (2004) by using an extended life cycle model. In their estimation, they have taken care of the stationarity of the variables by taking appropriate lag values in the model. Harberger (1950) and Laurson and Meltzer (1950) state in their papers that an unfavourable terms of trade scenario (i.e. reduction in export earnings) would lead to a fall in savings as current income falls, on the other hand Obstfeld (1982) argued that deterioration in TOT would also mean that import spending would reduce as people want to maintain a target level of real wealth. Thus, making it an empirical question.

Cultural factors in Saving-Consumption decisions of different communities do matter. Friend (1986) observed that differences in saving-income ratios across countries are represented by cultural differences or differences in tastes. Hence private savings can be increased more effectively through non-economic means in

addition to economic policies. Kazmi (1993) quantified the factors causing the differential in savings rate of India and Pakistan. He concluded that the difference of national savings rate between the two (7.9) for the period of 1960–88 is due to the differences in real GNP growth rates, population growth, government expenditure on education, government expenditure on defence, level of exports and imports, gross external aid, taxes, inflation and interest rates.

This paper assesses behaviour of saving and investment in Pakistan using appropriate econometric and statistical techniques. The data used in the study has been checked for the time series properties and accordingly the specification of the variables used in models have been changed. There is a draw back on this account in earlier studies on Pakistan. Current paper stressed for a revisited evaluation of saving-investment behaviour. The results show significant effect of GDP growth and government's current expenditure on saving along with insensitivity of individual to interest rates. Investment is considerably responsive to domestic saving, yield and uncertainty in the country.

The remainder of the paper is organised as follows. Section II discusses the saving-investment situation in Pakistan and relative to East Asian countries in the statistics framework for the last two-three decades. Section III reviews the potential determinants of saving and investment. Section IV contains the methodology, data issues and modeling and Section V provides the results. The final Section VI summarises the policy discussion and conclusion.

## II. SAVING AND INVESTMENT BEHAVIOUR IN PAKISTAN

Before moving to the analysis of determinants of saving and investment, this section describes the common trends of the two in Pakistan, followed by its comparison with East Asian countries. The government of Pakistan has been launching many schemes to increase the overall rate of saving in the country but due to low incomes, spendthrift nature of the people and improper implementation of the policies it could not achieve the desired goals.

If we see the graph below and Table 1, it can be seen easily that the three are positively correlated. The slopes where the GDP growth has fallen are those periods when the saving and investment have gone down as well. For example in 1981-82, with GDP growth rate of 7.56 percent the simultaneous growth rates of savings were 9.9 percent and that of investment were 19.62 percent (7.71 percent growth of GDP in 1991-92, combined with a growth rate of 41.91 percent for savings growth and 26.16 percent for national investment). This correlation is strong between GDP growth and investment as compared to national savings growth rate where more lagged relation is present (GDP growth rate to Savings).<sup>1</sup>

<sup>1</sup>The effect of GDP growth on savings, called Mckinnon (1973) effect, is tested empirically in the later estimation chapters as well and found to be significant.

Table 1  
Growth Rates (Percent)

Year	GDP	National Saving	Total Investment
1980-81	6.4	31.2	9.83
1981-82	7.56	9.9	19.62
1982-83	6.79	33.9	9.63
1983-84	3.97	2.1	12.04
1984-85	8.71	-3.4	12.81
1985-86	6.36	25.5	11.58
1986-87	5.81	26.9	13.46
1987-88	6.44	-5.3	11.07
1988-89	4.81	17.7	19.65
1989-90	4.58	12.1	11.34
<b>Standard Deviation for 1980s</b>	<b>1.42</b>	<b>14.27</b>	<b>3.64</b>
<b>Average</b>	<b>6.14</b>	<b>15.06</b>	<b>13.10</b>
<b>Maxima</b>	<b>8.71</b>	<b>33.93</b>	<b>19.65</b>
<b>Minima</b>	<b>3.97</b>	<b>-5.28</b>	<b>9.63</b>
<b>Coefficient of Variation</b>	<b>4.31</b>	<b>1.06</b>	<b>3.46</b>
1990-91	5.57	18.81	19.35
1991-92	7.71	41.91	26.16
1992-93	2.27	-11.51	13.8
1993-94	4.51	35.19	10.01
1994-95	5.26	8.87	13.42
1995-96	6.76	-7.83	16.42
1996-97	1.93	14.53	8.09
1997-98	3.5	35.93	9
1998-99	4.2	-10.22	-3.6
1999-00	3.9	44.64	10.2
<b>Standard Deviation for 1990s</b>	<b>1.83</b>	<b>21.91</b>	<b>7.84</b>
<b>Average</b>	<b>4.56</b>	<b>17.03</b>	<b>12.29</b>
<b>Maxima</b>	<b>7.71</b>	<b>44.64</b>	<b>26.16</b>
<b>Minima</b>	<b>1.93</b>	<b>-11.51</b>	<b>-3.6</b>
<b>Coefficient of Variation</b>	<b>2.49</b>	<b>0.78</b>	<b>1.57</b>
2000-01	1.8	28.22	8.6
2001-02	3.1	16.36	3.2
2002-03	5.1	16.46	9.3
2003-04	6.4	0.35	22.3

Source: *Economic Survey of Pakistan* (Various Issues).

This is evident when increased GDP growth rates have led to increase in savings rate for next years (i.e. growth rate of 7.56 percent for GDP in 1981-82 led to a growth of 33.9 percent in the next year and 8.71 percent growth of GDP in 1984-85 stimulated 25.5 percent and 26.9 percent growth rates of national savings in 1985-86 and 1986-87). Similarly a negative growth rate of -3.4 percent for national saving was preceded by a decline in growth of GDP from 6.79 percent to 3.97 percent in 1983-84. Whereas GDP growth is higher when investment rate is high, e.g. in 1995-96 when GDP grew at a growth rate of 6.7 percent was matched with a growth of 16.42 percent of investment, in 2003-04 GDP growth of 6.4 is matched with a growth of 22.3 in investment. Similarly GDP growth fell to 1.93 percent in 1996-97 mainly because investment growth fell to 8.09 percent in that year. The causality between the income and the saving/investment can be further empirically tested, but for our purpose the graph shows that there are strong relationships in either way.

In 1990s the growth rates have shown a highly volatile trend, and the situation is worse as compared to 1980s (lowest growth rates of the three were in 1990s). Interestingly high volatility and low average of GDP growth rates in 1990s are paralleled with high volatility and low average growth rates of savings and investment respectively. Thus suggesting that a sustained high average growth of saving and investment over time would lead to a sustained growth of GDP, which simultaneously (or if generated at lead) would again create enough space in the long-run to generate a sustained level of saving and investment. Thus this would trigger a cycle in which high growth rates in previous period will automatically generate higher levels of savings and investment and so on. The GDP growth went down to 4.56 percent in 1990s as compared to 6.14 percent in 1980s on average. Although savings rate improved on average from 15.06 percent to 17.03 percent (with increased volatility), average investment rate fell from 13.10 percent to 12.29 percent in the same period. But generally minimum possible rates for the three declined in 1990s. Investment dropped the most, from 9.63 percent to -3.6 percent (for Savings -5.28 to -11.51, for GDP 3.97 to 1.93). Overall GDP growth has been more volatile as compared to investment and saving (see coefficient of variations).

Table 2 shows the standing of Pakistan among East Asian countries in terms of the saving and Investment situation. By glancing at the figures above it could easily be stated that the saving and investment are the stimulus which is lacking in Pakistan for its desired economic growth. Saving and investment rates have experienced a vast divergence within the developing world: these rates have risen steadily in the East Asia and stagnant in most part of South Asia. In case of Pakistan, low saving and investment rates along with high consumption spending over the past three decades have characterised the economy. These East Asian countries show a high rate of domestic saving and investment not only in absolute terms but relative to Pakistan as well.

Fig. 1.

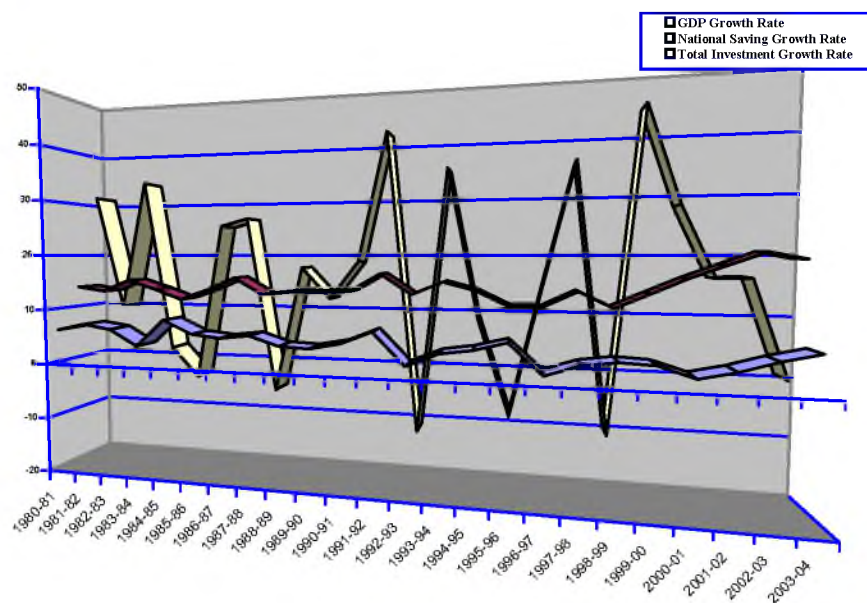


Table 2

## Cross-country Comparison

	1960	1965	1970	1975	1980	1985	1990	1995	2000	2001
<b>Gross Fixed Capital Formation* (% of GDP)</b>										
Japan	29.1	29.9	35.6	32.6	31.7	27.7	32.2	27.8	26.3	25.8
Korea, Rep.	11.4	15.4	25.5	26.8	32.4	28.8	37.3	36.7	28.4	27.1
Singapore	—	21.1	32.5	35.9	40.7	42.2	32.5	33.9	29.4	29.2
Hong Kong, China	—	34.3	19.7	21.6	32.4	21.1	26.4	30.6	26.3	25.8
Thailand	13.9	18.8	23.7	22.9	27.8	27.2	40.4	41.1	22.1	23.3
Malaysia	11.9	16.4	18.2	25.6	29.9	28.7	33.0	43.6	25.6	24.9
Indonesia	—	—	—	—	21.6	22.4	28.3	28.4	21.0	20.9
Pakistan	11.4	21.3	14.3	14.4	17.6	16.5	17.3	17.1	14.4	14.3
<b>Gross Domestic Savings (% of GDP)</b>										
Japan	33.4	33.4	40.4	32.9	31.5	31.7	33.7	29.6	27.4	26.1
Korea, Rep.	2.0	8.1	15.3	20.2	24.1	30.8	36.5	35.7	31.3	29.0
Singapore	8.8	9.9	18.4	29.4	38.1	40.6	43.6	50.7	49.5	46.0
Hong Kong, China	18.0	31.5	28.2	28.6	34.1	31.1	35.8	30.5	32.3	31.1
Thailand	14.1	18.6	21.2	22.1	22.9	25.5	33.8	35.4	31.4	30.1
Malaysia	25.9	22.0	24.3	23.3	29.8	29.9	34.5	39.7	46.9	47.2
Indonesia	12.4	7.9	14.3	26.6	38.0	30.3	32.3	30.6	25.2	25.5
Pakistan	—	—	8.9	4.7	6.9	5.9	11.1	15.9	14.4	14.6

Source: World Development Indicators 2003.

\*Gross fixed capital formation is taken as a proxy of Total Investment.

In 1960s Pakistan's domestic investment was almost the same as that of Korea, Malaysia and Thailand. However, in 1995, these countries were spending almost twice as much as Pakistan for her investment expenditure. Pakistan was having domestic investment at 14 percent as a percentage of its GDP in 1970, and it was moving around the same figure till 2000. If we see other countries, Singapore had an investment rate of 42 percent of its GDP in 1980. All other countries are having their investment rates in the range of 22 percent to 46 percent in the above mentioned years.

Similarly on the Gross Domestic Savings (GDS) front it is even worse. Again in 1960s Pakistan was much ahead of Korea and Singapore, but these countries witnessed a good deal of increase in domestic savings level. Korea went up to 36.5 percent of GDP for domestic savings in 1990 and Singapore had almost half value of GDP as domestic savings in 1995. Japan and Hong Kong, China witnessed most stable rates of GDS. Japan has more than four times the domestic saving rate as compared to Pakistan in 1970, then in the year 2000 it was still almost twice of the Pakistan's rate. The closest was Indonesia with a rate of 14 percent of GDP as Domestic Saving in 1970 as compared to 9.0 percent of Pakistan's, but the differential grew to 25 percent and 14 percent in 2000. After 1965 no country had a single digit GDS, but Pakistan witnessed it in 1970s and 1980s. Even Thailand went from 14.1 percent to 35.4 percent in 1995. Similarly, Malaysia showed a continuous increase from 25.9 percent in 1960 to 47.2 percent in 2001.

These figures could be taken as an indication as to how these economically developed countries have been formed by a sustained high growth rates of savings-investment and how they achieved the high economic growth rates. These countries have high saving and investment on sustained basis which is a pre-request for sustainable economic growth. Pakistan despite its pronounced efforts could not gear up to achieve the targets of high saving and investment and resultantly could not thrive economically as much.

### **III. DETERMINANTS OF SAVING AND INVESTMENT**

#### **1. Determinants of Saving**

The factors affecting the saving rates have been extensively discussed in the economic literature. In our analysis, we have used the framework of life-cycle model which has been a standard theory for the explanation of the behaviour of saving. In the extension of model on macro level, growth rate of per capita income and GDP, and dependency ratio are among the major determinants. Modigliani argues that a higher growth rate raises aggregate income of those working relative to those not earning labour income. This view is based on the life-cycle hypothesis. In fact, saving seems to be positively correlated with income growth in developing countries. A rise in per capita income above subsistence level may lead to higher savings in

developing countries. Khan, *et al.* (1992) found that per capita income has a strong effect on savings rate. Further a higher rate of economic growth may also stimulate savings through what Mckinnon (1973) has termed as the 'Portfolio-Effect' of growth. A rapid growth of income leads to a rapid growth of savings as people tend to save more out of transitory income thus confirming Harberger-Lawrson-Meltzer effect [Qureshi (1981)].

Age structure of a country also effect saving rates. If a high proportion of the population is of working age then the economy should have a high rate of private saving (life-cycle hypothesis). Higher proportions of the young and elderly in relation to persons of working age-dependency ratio are associated with lower saving rates [Siddiqui and Siddiqui (1993)]. Khan, *et al.* (1992) found that there is a negative relationship of dependency ratio and savings rate.

Real interest rate is another determinant suggested by Life cycle model. Empirical studies suggest that increase in real interest rate provides an incentive to private household to save more, induce corporate sector to generate its own savings due to high cost of borrowing, thus overall saving would increase [Iqbal (1993)]. But the effect of interest rates on consumption is ambiguous theoretically, being subject to potentially offsetting negative substitution and positive income effect, thus the net result depend on their relative strength which becomes an empirical question [Qureshi (1981)]. Khan, *et al.* (1992) showed a significant positive impact of interest rate on savings rate. Iqbal (1993) also found a positive relationship between domestic real interest rate and savings. There are number of studies which suggested significantly positive to significantly negative coefficients for this variable. However, consumers may not plan their lifetime consumption and respond primarily to current income and may save more [Masson, *et al.* (1998)].

Another important issue is the fiscal policy stance. In this regard, impact of govt. deficit on private saving, a full offset (Ricardian Equivalence) is rejected by the data. Public investment, if viewed as productive, is not expected to require further taxes and should not generate a private saving response [Masson, *et al.* (1998)].

For the potential impact on savings from the remittances, we have taken remittance as explanatory variable. Khan and Eric (1993) used remittances and real rate of interest as explanatory variables but latter dropped them due to their insignificance. By nature of remittances and the Household characteristics of recipient it is observed by Gilani (1981) and Amjad (1986) that almost 35 to 40 percent of remittances are saved and invested in the case of Pakistan. Iqbal (1993) confirmed their results at macro level with his result of a positive impact of remittance on savings.

If there is a transitory improvement in terms of trade, because it causes only a transitory change in income, it should lead to higher saving rather than higher consumption, again confirming the direction of the Harberger-Lawrson-Meltzer effect [Obstfeld (1982)]. Permanent shocks to the terms of trade would have



ambiguous effects that should be small in magnitude. Iqbal (1993) found that changes in TOT have a negative impact on Pakistan's corporate savings and a positive effect on public savings. On the other hand, Khan, *et al.* (1992) found that TOT has a significant positive impact.

Higher inflation can lead to lower savings by increasing uncertainty and in order to maintain the real levels of consumption, higher spending takes place resulting in low levels of saving (household savings). Inflation can also increase savings through real balances effect, where holders of money balances and other financial assets try to restore the real value of their holdings after an increase in prices (both for household and corporate entities). Further higher investment, financed through monetary expansion at full capacity will generate its own savings as ensuing inflation directs resources from relatively low savers in the economy to relatively high savers for corporate entities (Keynesian approach to inflation finance). Thus making it an empirical question [Qureshi (1981)]. Iqbal (1993) observed in his study that expected inflation has a negative relationship with savings, thereby stating that in case of expected inflation people would prefer to consume today.

### **Empirical Model**

The Saving model, which we have tested for potential determinants, is as follows:

$$NSG = a + b BDG + c GCEG + d GIG + e GDPG + f RIR + g TOT + h RMIG + \epsilon i$$

where the

*NSG* = is the National Saving growth rate.

*BDG* = is the Budget Deficit as percent of GDP.

*GDPG* = is the growth rate of Gross Domestic Product.

*TOT* = is the Terms of Trade index growth.

*GCEG* = is the Govt. Current Expenditure as percent of GDP.

*a* = is the intercept term.

*GIG* = is the Government Investment as percent of GDP.

*RIR* = is the Real.

*RMIG* = is the remittances growth.

$\epsilon i$  = is the error term.

## **2. Determinants of Investment**

Interest rate to derive an investment function for estimation purpose, we followed the *RMIG* is the Remittances flexible accelerator model of Fry (1998). According to this model, desired  $\epsilon i$  is the error term investment rates  $(I/Y)^*$  are proportional to the growth rate of real GDP (*y*) i.e.,

$$(I/Y)^* = \alpha y \text{ where, } Y \text{ is nominal } GDP \text{ and } y \text{ is real } GDP \text{ growth.}$$

According to partial adjustment mechanism, the actual investment rate adjusts to the difference between the desired investment rate and the rate in previous year. Flexible accelerator model allows the economic variables to influence the coefficient of adjustment of the partial adjustment mechanism. This allows us to estimate an investment model wherein investment depends on its determinants which comes as explanatory variables in the model.

Among these determinants, savings and interest rates are important ones. Domestic and foreign savings creates surpluses for the potential investment activities and lower interests rates in the economy reduces the cost of capital for investment. In this regard, Christy and Clendinning (1976) have also emphasised the importance of saving and interests rates.

Return and profitability of a business/investment are key motivating elements for making investment in any economic activity. For our analysis, we used yield on bonds as a proxy for return on investment. Mankiw (1994) has also emphasised on the profit or yield on the investment. This return however is influenced by the uncertainty in the economy and business activities. To capture this aspect, we followed Driver and Moreton (1991) and used the change in the lagged values of wholesale price index.

### ***Empirical Model***

The model tested is as follows:

$$TIG = a + b LIR + c YR + d LWPID + e FSG + f PLG + g DSG + \epsilon_i$$

where the

*TIG*= is the National Investment growth rate.

*YR*= is the yield on bonds of maturity of one year but less than two years, taken as the proxy of return on investment.

*FSG*= is the Foreign Saving growth rate.

*PLG*= is the Public Loans growth rate.

$\epsilon_i$  is the error term.

*LIR*= is the lag of Interest Rate at which loans are forwarded.

*LWPID*= is the lag difference of Whole Sale Price Index, taken for the uncertainty and expectations.

*DSG*= is the Domestic Savings growth rate.

## **IV. METHODOLOGY AND RESULTS**

### **Methodology**

We used the Ordinary Least Square method to regress saving and investment on their theoretical and potential determinants. The data consists of observations

collected for 33 years i.e. from 1971–2003. To remove the trend problems in the series and to make the variables consistent with the time series properties required in the econometric analysis, we used some variables as percentage of GDP and some as their growth rates. We also checked stationarity of the variables through ADF test while applying lag length from SIC and AIC criteria. Accordingly we change the specifications of the variables and the models to get the reliable results. This way the analysis has taken care of the issues ignored in the earlier studies on Pakistan and the results are quite reliable in terms of statistical interpretation.

The data collected from the *Economic Survey* shows discontinuity before 1981 and definitions of some of the variables have also been adjusted. To make the data consistent some values have also been obtained from other data sources like *State Bank's Annual Reports*. The indices were also corrected for the differences in their base years.

### **Econometric Results**

The results obtained from the empirical set of analysis are described below in this section separately for saving and investment.

#### **1. Saving Function**

The results for the saving function have been reported in Table 3. Initially, the model was estimated without taking into account the persistent autocorrelation. Due to the presence of autocorrelation, the model was corrected for autocorrelation. Generally signs of the coefficients are in line with economic theory except for budget deficit, which has negligible effect with *t*-value being insignificant and therefore, rejecting the possibility of Ricardian Equivalence. People are either naïve or they consider government deficit spending productive enough that in future they will not be taxed further to cover the gap. This result is consistent with that of Masson (1998). Increase in govt. current expenditure raises savings and its effect is highly significant, which means that govt. current expenditures are mainly contributive towards the income of people and thereby increases savings. The coefficient of govt. investment is negative (but insignificant) which shows that these spending are not providing the extra returns for individuals/corporate sector to save more.

Our estimation results show positive and significant effect of GDP growth rate and thereby confirm Mckinnon's 'portfolio-effect'. This result is in line with economic theory and previous studies [see for example, Khan, *et al.* (1992) and Khan, *et al.* (1994)]. One unit growth rate increase in GDP would lead to almost half unit increase in savings rate, suggesting that people tend to save more out of transitory income which is consistent with results of Qureshi (1981). Remittances showed similar results of positively effecting savings rate. These are in line with results of Gilani (1981) and Amjad (1986) which were based on micro data set, but are significantly different from those of Iqbal (1993) and are on the lower side.

Table 3

*Results for Saving Function*

Variables	Corrected for Serial Correlation
Constants	-3.51 (-.61)
Budget	-0.0087
Deficit/GDP	(-.069)
Govt. Current Expenditure/GDP	0.74 (4.868)*
Govt. Investment/GDP	-0.2667 (-1.011)
GDP Growth Rate	0.415 (2.44)*
Real Interest Rate	0.087 (0.112)
Terms of Trade	0.022 (0.99)
Remittances Growth Rate	0.032 (3.46)*
R-Square	0.766
Standard Error of Regression	1.33
Durbin Watson Statistics	1.969

Note: The figures in parenthesis are *t*-values.

\*Represents 1 percent level of significance.

While testing for effects of increase in real interest rate, no strong conclusion could be drawn as the results are insignificant, which yield a possibility that in Pakistan savings are mainly for precautionary purposes rather than for an income generation activity. Harberger-Lawson-Meltzer effect could also not be found as terms of trade variable was not significantly positive. This is in line with Khan, *et al.* (1992, 1994) results.

## 2. Investment Function

The results for the investment function have been reported in Table 4. The Durbin-Watson for this estimation is 1.94, which is considerably good from a no-autocorrelation point of view. The coefficients in the table generally have signs that are consistent with intuition except the lag of interest rate, which have positive sign with insignificant *t*-value showing a considerable difference from a normal micro level investor perspective. We used lag of loanable funds rate with the assumption that for current year investment, the decisions are made on the basis earlier information. Insignificance of interest rate can be explained by multiple reasons. First due to financial repression, for most part of the data true interest rates were not

Table 4

*Results for Investment Function*

Variables	OLS Estimates
Constants	2.569 (1.56)***
Lag of Interest Rate	0.615 (0.158)
Yield on Bonds	0.649 (4.273)*
Index of Lag of Difference of Wholesale Prices	-0.0016 (-4.55)*
Foreign Saving	0.083 (1.2)
Public Loans/GDP	0.072 (1.21)
Domestic Saving/GDP	0.36 (3.99)*
R-Square	0.856
Standard Error of Regression	0.847
Durbin Watson Statistics	1.94

Note: The figures in parenthesis are *t*-values.

\*Represents 1 percent level of significance.

\*\*\*Represents 10 percent level of significance.

available. Secondly as business is made after cost and benefit analysis, it might be the case that increasing interest rates are matched with parallel increase in returns therefore making it insignificant. Thirdly it could suggest some estimation methodology problems as well. Largely investment is insignificant to interest rate for the case of Pakistan. Return on yield to bonds of more than one year but less than two years was taken as a proxy for the return to investment in short run, it showed highly significant positive coefficient of .65, which confirms the second argument of the above explanation. We used lagged index of whole sale prices as a measure of uncertainty in business. Its result is highly significant and consistent with theory. It showed a negative coefficient; thereby stating that with increase in uncertainty investor confidence reduces thus a dropping investment level. These results are in line with those of Driver and Moreton (1991). Increase in the domestic saving and foreign saving both lead to a positive significant and positive non significant effect respectively. On the other hand, insignificance of foreign savings in affecting national investment suggests that in case of Pakistan domestic resource mobilisation is more appropriate policy option to increase investment. Public loans show a positive but insignificant coefficient. It is because public loans are taken to finance those development projects which are public goods by nature and lead to increase in

private return. It increases anticipated returns to investor and hence positively effects investment.

In the investment model, the goodness of fit is around 85.6 percent. There is a large part of the regression going to the constant term that shows that there exists a large autonomous investment portion in the total investment, which is also almost significant. It shows that there exists an investment, which is primarily done as the “wear and tear cost” of the capital.

## V. CONCLUSION

The investment and saving rates in Pakistan could not achieve significant growth in the past three decades and resulted in slow economic growth. A comparison with the East Asian economies reveals clearly that Pakistan has long way to go. To be at the same level of growth with these fast growing economies, Pakistan needs to finance the desired investment through increased domestic saving without undue reliance on the foreign resources as these introduce an element of unsustainability. So, it is essential to get the saving rate up to 20–25 percent, if we want to follow the model of these countries. There is need to boost up the saving and investment in the country through effective policies giving due consideration to the effectiveness of the potential determinants.

Savings in Pakistan are not significantly effected by the budget deficit and government investment. i.e. there is no Ricardian Equivalence. However, by the increase in the Government’s current expenditures more resources are transferred towards the people in the form of increased wages, and more liabilities are cleared on the part of Government. The study shows significant effect of economic growth on savings whereas saving behaviour in the country is insensitive to the interest rate. Most people save to cover the future expenditures, i.e. Education, Marriages, etc. So, re-structuring of the financial market is needed to lure more saving.

Remittances are contributing towards the higher savings in the country and more effective policies are needed for transfers of remittances and further job creation for Pakistanis abroad. Further, no Harberger-Lawrson-Meltzer effect could be found for Pakistan’s savings, probably due to low share of trade in GDP.

Return on investment is an important determinant of investment in Pakistan. Its role in investment decisions-making carries such a weight that it outweighs negative impact of increased rate of borrowing. Expectations and uncertainties play a major role in investment decisions in Pakistan. Whereas domestic saving is a major source of investment, foreign saving is not effective for investment in Pakistan.

This was a brief overview of the behaviour and determinants of saving and investment in Pakistan, but there is a need to look further into the micro foundations of the subject. Moreover, in some variables the causality has to be confirmed before making any rationale decision.

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